Claims

1. A packaging material of the corrugated cardboard type made by gluing together a plane paper layer (11) and an auxiliary paper layer (12) with waves presenting an amplitude (a) perpendicular to the plane of propagation of the auxiliary paper layer, and where the wave tops form a system of substantially parallel waves (10, 10', 10") presenting an amplitude (b) in the plane of propagation of said auxiliary paper layer (13), a second plane paper layer (13) being arranged below said auxiliary paper layer (12), **characterised in**, that it comprises a second auxiliary paper layer (14) arranged below said second plane paper layer (13) and optionally a third plane paper layer (15) and in that as far as the waves are concerned which present an amplitude perpendicular to the direction of propagation of the two auxiliary paper layers (12, 14), a phase displacement φ is provided between the waves of these layers, φ being in the range of $\frac{\pi}{4} - \frac{\pi}{3}$.

2. A packaging material according claim 1, **characterised in**, that the waves of at least one type of waves on the auxiliary paper layers (12, 14) are rather flat on the sides in such a manner that the waves are of a substantially serrated shape, viz. triangular waves with tops and bottoms which are optionally slightly rounded, or the waves can be substantially "square", viz. square waves.

3. A packaging material according to claim 1, **characterised in** , that the surface of each auxiliary paper layer (12,14) follows a face substantially corresponding to the mathematical functional expression:

$$z(x,y) = a\sin(\frac{2\pi}{\lambda_1}x + \frac{\pi}{2} + b\sin\frac{2\pi}{\lambda_2}y)$$

where a and λ_1 represent the amplitude and the wavelength, respectively, of the waves perpendicular to the plane of propagation of the auxiliary paper layer, and where b and

λ_2 represent the amplitude and the wavelength, respectively, of the waves in the plane of said auxiliary paper layer, viz. the plane of propagation, and that the ratio $\frac{a}{b}$ of the amplitudes for the two types of waves may be in the range of 0.10 to 0.60, preferably 0.15 to 0.50, especially 0.22 corresponding to a = 0.5 mm and b = 2.25 mm.

4. A packaging material according to one or more of the claims 1 to 3, **characterised in**, that the ratio $\frac{\lambda_1}{\lambda_2}$ of the wavelengths for the two types of waves is in the range of 0.09 to 0.20 and preferably is approximately 0.15 corresponding to λ_1 = 3.5 mm and λ_2 = 23.5 mm.

5. A packaging material according to claim 2, **characterised in**, that the plane paper layers (11, 13) and the auxiliary paper layers (12,14) are of the same thickness, preferably between 0.05 and 0.3 mm, such as 0.1 mm, and that the auxiliary paper layers (3) is of a weight of 50 to 250 g/m^2, especially 70 to 150 g/m^2.

6. A packaging material according to claim 1 or 2, **characterised in**, that starch-based or cold-water glue is used for the lamination of the layers.